

REMARKS**I. Claim Objections and Rejections under 35 USC §112**

Reconsideration of the above-identified application in view of the foregoing amendments and following remarks is respectfully requested.

Claims 1, 3-9, 11-27 were rejected under 35 U.S.C. §112, second paragraph as being incomplete for omitting essential steps and elements for providing an image. Claims 1, 5-6, 9, 1-13, and 24 are amended to more clearly define the claimed invention. Support for these amendments are found throughout the specification and drawings, especially at paragraphs [0029] –[0046]. No new matter has been added.

The applicant now claims selecting a plurality of time-gates for imaging an object and injecting a pulse of light into the object. Collection of light from the object is done at selected time-gates to provide a plurality of optical signal based temporal point spread functions. Light collection is not done for a series of consecutive time-gates.

The applicant has further clarified “staggering” the collection. Claim 1 now has the limitation of introducing a corresponding temporal delay to each one of the optical signal based temporal point spread functions for obtaining staggered optical based temporal spread point spread functions. This limitation finds support in the specification, among other places in the specification and drawings, at paragraphs [0015] and [0051]. Temporal delays are introduced in the propagation of optical signals such that the temporal point spread function’s reach the time-gated detector in a staggered manner.

Applicant believes these amendments overcome the rejections. Withdrawal of the rejections under 35 U.S.C. §112 is respectfully requested.

2. **Rejection under 35 USC §102 in view of Wake**

Claims 1, 3-5, 15 , 18-27 are rejected as being anticipated by Wake (US2002/01000864). The Examiner stated that Wake discloses the method and system claimed by the applicant. Applicant traverses the Examiner's characterizations of Wake, and specifically the Examiner's contention that Wake teaches sequential time-gating and staggered beam collection. The passage pointed out by the Examiner, paragraph [0071] in Wake, merely describes a laser pulse propagating through a non-attenuating medium such as air to travel in a straight line. A laser pulse directed into a breast does not follow a straight-line propagation path. Breast tissue causes the photon beam to scatter, resulting in a zig-zag-like course through the breast. There is nothing in Wake that teaches or suggests staggered collection as the Applicant claim.

The Applicant now claims a method and system that collect light only for selected time-gates, and not for a series of consecutive time gates as Wake discloses. See for example paragraph [0101] in Wake, “[t]hus, for any one time-gate interval, groups of 8, 16 and 32 laser pulses might be collected. The laser pulse numbers can be set in interval values ranging from 1 to 128 pulses. After a preset number of laser pulses has been sampled, **the next time-gate** is set to sample along the portion of the TPSF curve.” (emphasis added).

It is well settled for a reference to anticipate, all the claimed elements must be identically disclosed either expressly or inherently in a single reference. Wake fails to disclose collection only for selected time-gates. In fact, Wake teaches away from what the applicant claims by disclosing a series of consecutive time gates.

In view of the above remarks, applicants respectfully request withdrawal of the rejections.

3. **Rejection under 35 USC §103 for Wake in view of Grable**

Claims 6-8 are rejected over Wake in view of Grable U.S. Patent No. 5,692,511 (“Grable”). The Examiner stated Wake does not disclose the basis of selecting time-gates. The Examiner further states Grable teaches the measurement criteria considering properties of light and thickness of the desired medium to be measured and concludes it would have been obvious to fill the deficiencies of Wake with the disclosure of Grable to provide the Applicant’s invention. The Applicant traverses the rejections and contend a *prima facie* case of obviousness has not been made. Applicant repeats the same arguments with respect to the Wake reference made above and add the following concerning Grable. Grable is silent as to disclosing light collection only for selected time-gates. In fact, Grable teaches away from what the Applicant claims by using a time-of-flight approach, timing data acquisition automatically to the laser pulses beaming into the breast at each of the fan locations. Grable states “other approaches” such as laser gating of a Kerr optical shutter or variable optical delay lines would not be practical given the number of measurement to be made in 1 second.(emphasis added). A reference must be considered in its entirety including those sections that teach away from what the applicant claims. Since Grable and Wake do not disclose what the applicant claims, withdrawal of the rejection is respectfully requested.

4. **Rejection under 35 USC §103 for Wake in view of Mukherjee**

Claims 13-14, and 16-17 are rejected over Wake in view of U.S. Patent Publication No. US2002/0067901 (“Mukherjee”). The Examiner stated Wake teaches all the elements except using a time-gated camera and ICCD camera. The Examiner further states that

Mukherjee teaches this limitation and it would have been obvious to have modified Wake to provide ICCD cameras in place of detectors.

Applicant repeats the arguments previously made above with respect to Wake. Mukherjee is silent as disclosing the Applicant's claimed invention of collection of light from the object done only at selected time-gates to provide a plurality of optical signal based temporal point spread functions. Mukherjee teaches away from the claimed invention by disclosing a fast gating camera is not required for low light intensities. (paragraph [0040]).

Mukherjee does not appreciate the existence of the problem solved by the Applicant's invention. One skilled in the art would not have looked to the ICCD in Mukherjee to solve the problem that the applicant's invention solves.

None of the references cited above either individually or in combination teach or suggest a method and system that collect light only for selected time-gates, and not for a series of consecutive time gates as the Applicant now claims. Withdrawal of the rejection is, therefore, respectfully requested.

CONCLUSION

Based on the foregoing amendments and remarks, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims and allowance of the present application.

If any issues remain, or if the Examiner has any suggestions for expediting allowance of this application, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below. Favorable reconsideration is respectfully requested.

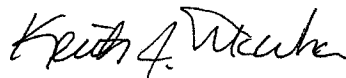
AUTHORIZATION

The Commissioner is hereby authorized to charge any fees which may be required for consideration of this Amendment or credit any overpayment to Deposit Account No. **50-1145**, Order No. 703734.000020. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

Respectfully submitted,
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By:



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